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(71) Applicant(s)

Fujitsu Limited

(Incorporated in Japan)

1-1 Kamikodanaka 4-chome, Nakahara-ku,  
Kawasaki-shi, Kanagawa 211, Japan

(72) Inventor(s)

Toshiki Yamauchi

Hiroshi Yamaguchi

(74) Agent and/or Address for Service

Haseltine Lake & Co

Imperial House, 15-19 Kingsway, LONDON,  
WC2B 6UD, United Kingdom

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(52) UK CL (Edition O )

G4A AFGX AUXX

(56) Documents Cited

EP 0721268 A2 WO 93/07566 A1 US 5057935 A

JAPIO Abstract Accession No. 04418147 & JP

06-062047 A (Fujitsu), 4 March 1994. See abstract.

(58) Field of Search

UK CL (Edition O ) G4A AFGX AUXX, H4K KF54 KOD4

INT CL<sup>6</sup> G06F 17/60, H04L 12/58

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(54) Automatic transfer system for electronic mail

(57) A system for automatic transfer of electronic mail which can set up and modify the automatic mail transfer operation without requiring users to learn a completely new operating method or requiring the system manager to set up the transfer. The mail handler 2 searches the user address books 6 of the intended receivers of a mail message, using an automatic transfer destination name 4 as a keyword, and transfers the message to the user corresponding to the automatic transfer destination name when the keyword exists in the user's address book.

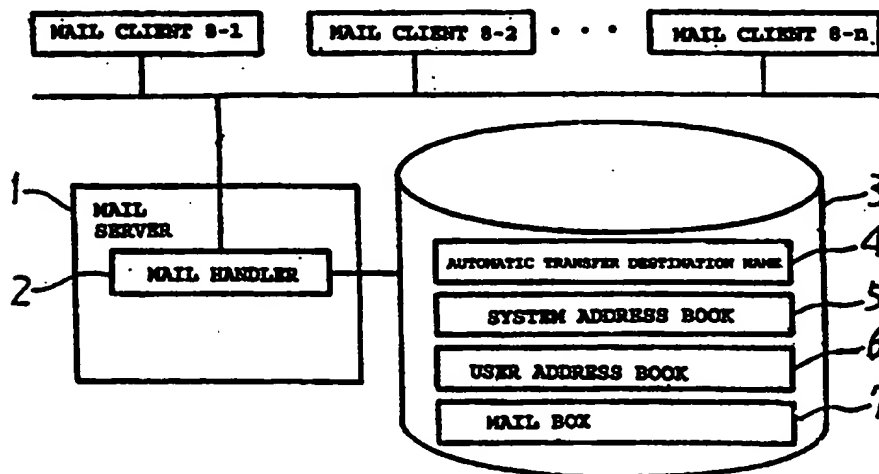


FIGURE 1

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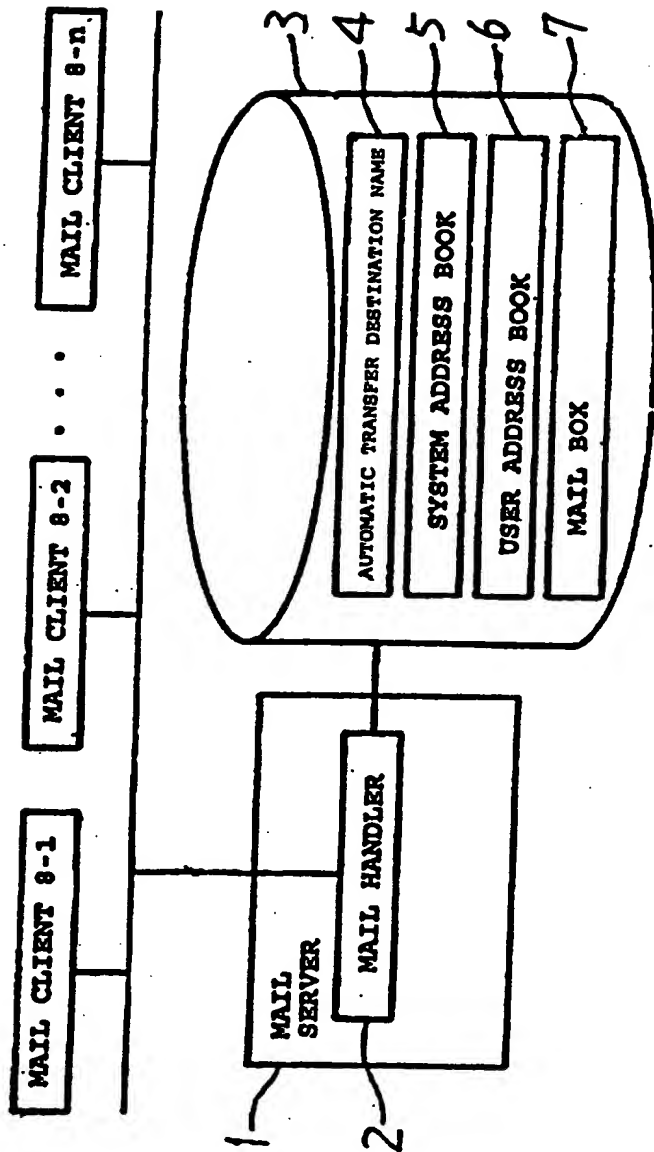


FIGURE 1

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A rectangular box containing an email header. The text inside is: "To: MANAGER OF DEPARTMENT OF GENERAL AFFAIRS", "From: user-a", and "Subject: REGARDING PATENT APPLICATION". Handwritten annotations include: "22" with an arrow pointing to the "To:" line, "20" with an arrow pointing to the box, "24" with an arrow pointing to the "From:" line, and "26" with an arrow pointing to the "Subject:" line.

To: MANAGER OF DEPARTMENT OF  
GENERAL AFFAIRS

From: user-a

Subject: REGARDING PATENT APPLICATION

FIGURE 2

A rectangular box containing a list of recipients. The text inside is: "PRESIDENT: user - 001", "MANAGER OF DEPARTMENT OF SALES: user - 002", "MANAGER OF DEPARTMENT OF DEVELOPMENT: user - 003", "MANAGER OF DEPARTMENT OF ACCOUNTING: user - 004", "MANAGER OF DEPARTMENT OF GENERAL AFFAIRS: user - 005", and "MANAGER OF DEPARTMENT PERSONAL AFFAIRS: user - 006". Handwritten annotations include: "32" with an arrow pointing to the first line, "34" with an arrow pointing to the second line, and "30" with an arrow pointing to the box.

PRESIDENT: user - 001

MANAGER OF DEPARTMENT OF SALES: user - 002

MANAGER OF DEPARTMENT OF DEVELOPMENT: user - 003

MANAGER OF DEPARTMENT OF ACCOUNTING: user - 004

MANAGER OF DEPARTMENT OF GENERAL AFFAIRS: user - 005

MANAGER OF DEPARTMENT PERSONAL AFFAIRS: user - 006

FIGURE 3

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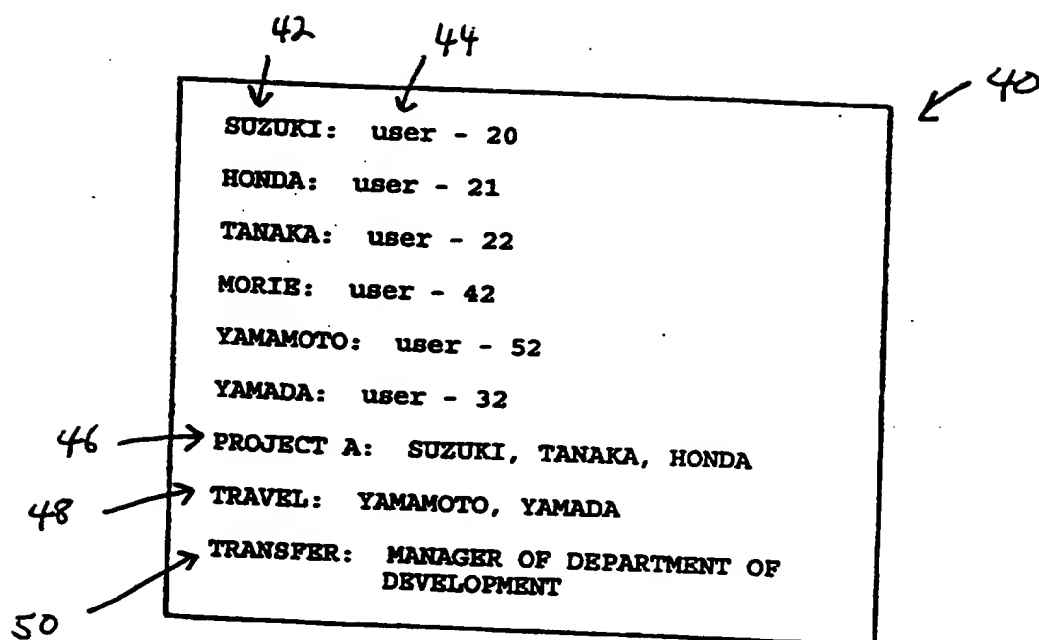


FIGURE 4

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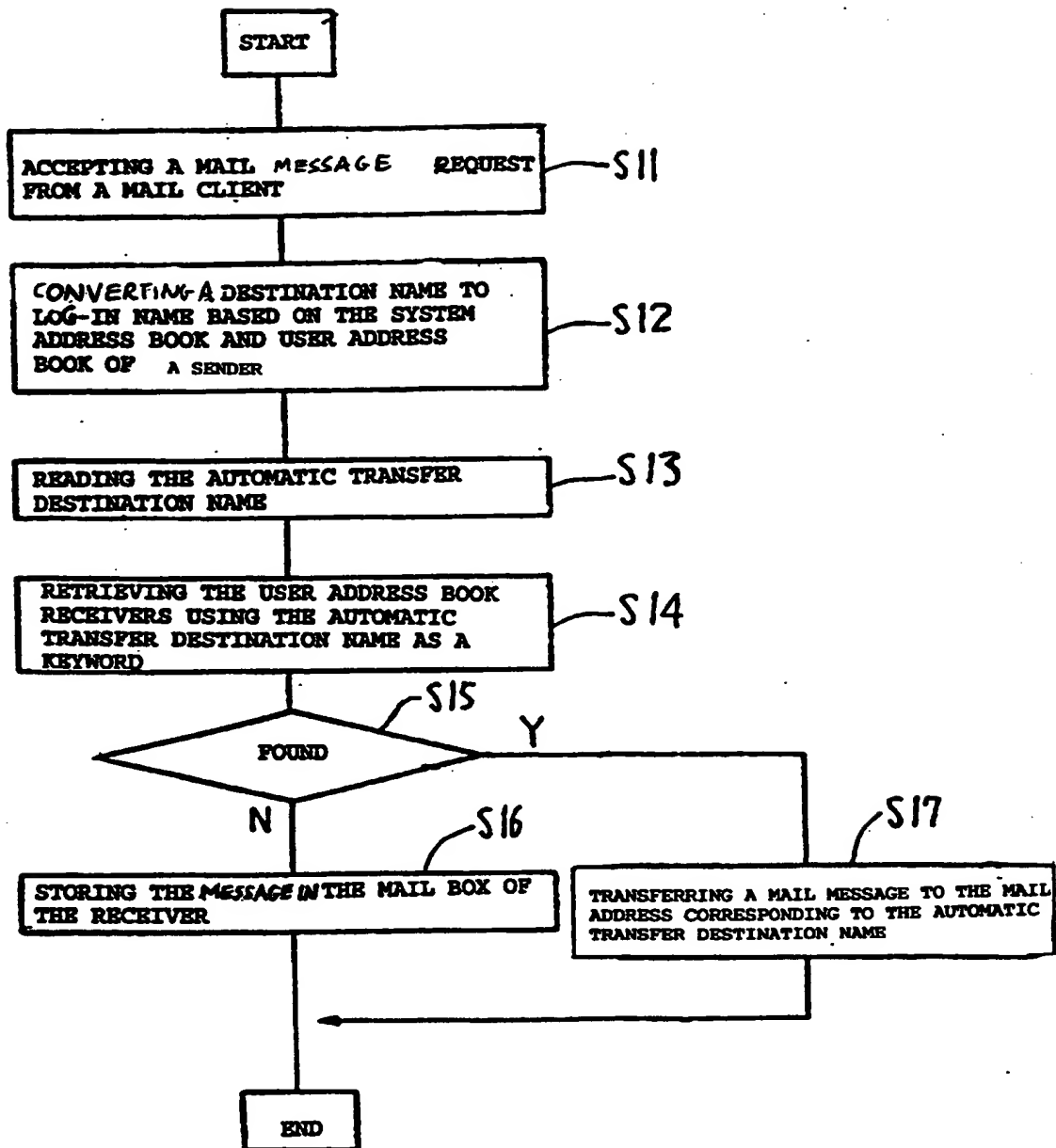


FIGURE 5

- 1 -

## AUTOMATIC TRANSFER SYSTEM FOR ELECTRONIC MAIL

## CROSS REFERENCE TO RELATED APPLICATIONS

5 This application is based upon and claims  
priority from Japanese Patent Application 8-044537  
filed March 1, 1996, the contents of which are  
incorporated herein by reference herein.

## BACKGROUND OF THE INVENTION

## Field of the Invention

10 The present invention relates to an  
automatic transfer system for electronic mail and,  
more particularly, is directed to an e-mail system  
that automatically alters destination addresses when  
a senders address hook includes a transfer  
15 indication keyword.

## Description of the Related Art

Automatic transfer of electronic mail (e-  
mail) allows mail sent from a sender to one user to  
be automatically transferred to another user. The  
20 need for automatic transfer arises, for example,  
when an electronic mail user cannot attend to  
received electronic mail due to a long term absence  
in which case the user's mail needs to be forwarded  
to another user who has been appointed as a proxy.

25 To effect an automatic transfer of mail,  
typically either the user or system manager must set  
up the transfer operation using a specialized method  
or program. In general, the need to set up an  
automatic transfer of electronic mail arises  
30 infrequently. Thus, the user typically has no or

very little experience in setting up the automatic transfer operation. It is also difficult for a user who has no previous experience in automatically transferring mail, to learn for the first time the method required for setting-up the automatic transfer of e-mail. An additional burden can also be placed on the e-mail system manager who must in certain cases set up the operation and collect the user's data. In conventional electronic mail systems, the set up operation for initializing the transfer of e-mail to a different destination is done manually using a program specialized for the task.

It is an object of the present invention to implement an electronic mail system which can automatically set up and modify automatic transfer operations for electronic mail and thereby release the user from the burden of learning new operations and lessen the workload of the e-mail system manager.

To attain the above-mentioned objects, the present invention provides an automatic transfer system for handling mail in a computer based electronic mail system which takes an electronic mail message originally intended to be sent to one user and automatically transfers the message to alternate users. The system includes address books for management of destination names and corresponding mail addresses for each user of the system. The system also includes a mail handler for retrieving the address book of a recipient and scanning the address book using an automatic transfer destination name as a keyword and transferring the mail message to the mail address corresponding to the automatic transfer destination name.

These together with other objects and

advantages which will be subsequently apparent,  
reside in the details of construction and operation  
as more fully hereinafter described and claimed,  
reference being had to the accompanying drawings  
5 forming a part hereof, wherein like numerals refer  
to like parts throughout.

#### BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is a system diagram.

Figure 2 is a diagram illustrating an  
10 example of a mail header.

Figure 3 is a diagram illustrating an  
example of a system address book.

Figure 4 is a diagram illustrating an  
example of a user address book.

15 Figure 5 is a flowchart illustrating a  
process flow of a mail handler.

The present invention is directed to an  
automatic transfer system for electronic mail (e-  
20 mail) in an electronic mail system provided by a  
computer. If an electronic mail user (designated as  
user A) cannot read the electronic mail received for  
the user and thereby cannot execute a job requested  
by the e-mail because of a long-term absence or some  
25 other condition, completion of the job is requested  
by automatically transferring the electronic mail  
addressed to the user A to another user (designated  
as user B) who has been appointed as a proxy for  
user A. For the transfer of electronic mail to a  
30 proxy in the electronic mail system, the information  
required for a transfer is provided using a  
changeable keyword.

Figure 1 is a system diagram illustrating  
the present invention. In this figure, a mail  
35 server 1 is used to process the e-mail while a mail  
handler program 2 executed by the mail server 1  
processes the mail. An external memory 3 is



provided for storing various pieces of information including an automatic transfer destination name 4 which is modifiable by the system manager and identifies a keyword used to designate a transfer. Also included is a system address book 5 storing system addresses, a user address book 6 provided for each user, and a mail box 7 for managing received mail for each user. The system also includes mail clients 8-1, 8-2, . . . , 8-n which are typically desk top type computers and which are connected to the mail server 1 via a transmission line.

For a user to transmit mail to other users, a mail client 8 first logs into the mail server 1. The mail server 1 is a server computer dedicated to e-mail processing. A unique login name is assigned to each user and this login name is used as the mail address of the user.

Next, the user sends mail (e-mail) from the mail client 8 which is then processed by the mail server 1. The mail to be transmitted to the mail server 1 from the client 8 includes a mail header having fields for the sender, one or more receivers, and a body containing text or other information to be sent to the receiver.

An example of a mail header 20 is shown in figure 2. The character string 22 following "To:" in the first line of figure 2 indicates the destination name. The destination name 22 includes one or multiple login names (actual mail addresses of receivers) or destination names (character strings) listed in an address book. The second line beginning with "From:" includes a character string 24 that designates the sender of the e-mail. The character string 24 following "From:" particularly indicates the mail address, that is, login name of the sender. The third field beginning with "Subject:" includes a string 26 which designates a title or subject of the mail. The example shown in figure 2 indicates a mail message

with the title or subject "Regarding Patent Application". This message originates from "user-a" and is sent to "Manager of Department of General Affairs". The Manager of Department of General Affairs is listed in a user address book 40 of user-a (see Figure 4).

An address book indicates a correspondence between a destination name and a mail address (that is, a login name). The system has two types of address books: a user address book 40 (see figure 4) which is provided for and individually used by each user and a system address book 30 (see figure 3) which is used in common by all users of the e-mail system. Each user has a private user address book 40 which that the user can freely modify. The system address book 30 makes it easy to change the definition of relationships between destination names and mail addresses. If a system address book 30 did not exist, all definitions of relationships between destination names and mail addresses would have to be defined in each user book 40 even though some definitions are common for all users. Consequently, every user address book 40 would have to be updated when a common definition is changed. In the present system, only the system address book needs to be updated.

Figure 3 shows an example of a system address book 30, while figure 4 shows an example of a user address book 40. Both the system address book 30 and the user address books 40 are used for management of the destination name information and have the same format. The left side of the colon (":") of each line indicates the destination name, while the right side of the colon indicates an actual mail address (login name) corresponding to each destination name. A plurality of corresponding mail addresses can be designated for one destination name. Moreover, the other corresponding destination names defined in the same address book may also be

defined in place of the mail address. In addition,  
a destination name defined in the system address  
book 30 can also be used in the user address book  
40.

5           In the system address book 30 shown in  
figure 3, for example, a corresponding mail address  
(login name) "user-001" is designated for the  
destination name "President", while a corresponding  
mail address (login name) "user-002" for the  
10 destination name "Manager of Department of Personal  
Affairs", a corresponding mail address (login name)  
"user-003" for the destination name "Manager of  
Department of General Affairs", a corresponding mail  
address (login name) "user-004" for the destination  
15 name "Manager of Department of Accounting", a  
corresponding mail address (login name) "user-005"  
for the destination name "Manager of Department of  
Development" and a corresponding mail address (login  
name) "user-006" for the destination name "Manager  
20 of Department of Sales".

Moreover, in the user address book 40  
shown in figure 4, the mail address (login name) 42  
"user-20" corresponds to the destination name 44  
"Suzuki", while the mail address (login name) "user-  
25 21" corresponds to the destination name "Honda", the  
mail address (login name) "user-22" to the  
destination name "Tanaka", the mail address "user-  
42" to the destination name "Morie", the mail  
address (login name) "user-52" to the destination  
30 name "Yamamoto" and the mail address (login name)  
"user-32" to the destination name "Yamada",  
respectively in the first line to the sixth line.

In the seventh line 46 of book 40, the  
mail addresses (login names) "user-20", "user-22",  
35 "user-21" correspond to the destination name  
"Project A" using the destination names "Suzuki",  
"Tanaka", "Honda".

In the eighth line 48 of book 40, the mail  
addresses (login names) "user-52" and "user-32"

correspond in direct to the destination name  
"Travel" using the destination names "Yamamoto",  
"Yamada".

5           Moreover, in line 50 of book 40 the mail  
address (login name) "user-005" corresponds to the  
destination name "Transfer" using the destination  
name "Manager of Department of Development" defined  
in the system address book indicating that an  
automatic transfer is required to mail received by  
10       this user. "Transfer" is a system keyword that  
matches the automatic transfer destination name 4.

          The processing steps of the mail handler 2  
will now be explained (using figure 5).

          The process begins when a user (sender)  
15       sends a mail message from a mail client 8 (step  
S11). The mail handler 2 of the mail server 1  
receives the message. The mail handler 2 parses the  
"From:" field of the mail header of the message to  
identify the user's address and retrieves the user's  
20       address book corresponding to the user's address.

          Based on the identified user address book  
40 and system address book 30, all destination names  
in the "To:" field are converted into mail addresses  
(step S12). When an actual mail address (login  
25       name) is designated in the "To:" field, the name  
conversion is not carried out.

          Next, the automatic transfer destination  
name 4 or keyword that system wide indicates that a  
transfer is to be performed is read from external  
30       memory 3 (step S13).

          The user address book 40 corresponding to  
the mail address obtained in step S12 is retrieved  
for each receiver and scanned using the automatic  
transfer destination name 4 as a keyword (step S14).

35       The automatic transfer destination name  
will either be listed or not listed (step S15).  
"Found" in step S15 means that the retrieval of step  
S14 found an entry in the user's address book which  
has a destination name equal to the automatic

transfer destination name 4, that is, there is a keyword match.

When the automatic transfer destination name 4 is not listed, the mail message is stored (step S16) in the mail box corresponding to the mail address, that is, in the receiver's mail box. When the automatic destination name 4 is listed, the mail message is transferred (step S17) to the mail address corresponding to the destination. The mail address is obtained in the same manner as step S12.

The operation of the mail handler will now be illustrated by an example of the processing when the message of figure 2 is sent.

First to be considered is the case where the automatic transfer destination name is "Transfer". In step S11, the mail handler receives the message of figure 2. In step S12, the mail handler 2 indexes into the system address book 30 of figure 3 using the name "Manager of Department of General Affairs" taken from the "To" field of the message and thus retrieves the mail address "user-005". In step S13, the automatic transfer destination name is read to obtain "Transfer" (step S13). In step S14, the user address book corresponding to "user-003" is retrieved and scanned. In step S15, the keyword "Transfer" is found in the user's address list (Figure 4) which switches control to step S17. In step S17, since "Transfer: Manager of Department of Development" is listed in the system address book of the login name "user-005", the mail message is transferred to the Manager of the Department of Development (that is, "user-003").

As another example, consider the case where "Morie" is listed as the automatic transfer destination name 4 or system keyword designating a transfer.

Again, a user "user-a" requests (step S11) the mail server 1 to originate a mail message having

the mail header shown in Figure 2 from a mail client  
8, the mail handler accepting the request. The mail  
handler 2 indexes (step S12) into the system address  
book 30 (Figure 3) using the name "Manager of  
5 Department of General Affairs" taken from the "To"  
field of the message thus retrieving the mail  
address "user-005". Next, the automatic transfer  
destination name is read (step S13) to obtain  
"Morie". Then, the user address book corresponding  
10 to "user-003" is retrieved and scanned for the  
keyword (step S14). In step S15, "Morie" is listed  
in the user address book 40 of "user-003" switching  
control to step S17. The mail message is then  
transferred (step S17) to the mail address "user-  
15 42".

Here, only user-005 has been discussed as  
the mail receiver. But when the automatic transfer  
destination name is changed, the automatic transfer  
destinations of the mail of other users can all  
20 naturally be changed. That is, in the above  
example, if "Morie: user-234" were registered, for  
example, in the user address book of the login name  
"user-123", a mail addressed to "user-123" would be  
transferred to "user-234". Further, a login name  
25 has been used as the mail address in the  
description, a name other than the login name may be  
used so long as it is a unique name for each user.

In accordance with the present invention,  
an exclusive operation or program for designating  
30 automatic transfer of e-mail is not required when a  
user indicates the automatic transfer destination of  
his e-mail and the automatic transfer destination of  
e-mail can be registered using the experience gained  
by the user in setting destinations in the user's  
35 address book and a user is not required to learn a  
new operating method. The automatic transfer  
destinations of all users can quickly and easily be  
modified by only modifying the automatic transfer  
destination name, the work load on the e-mail system

manager is reduced and operation efficiency is improved.

5       The many features and advantages of the  
invention are apparent from the detailed  
specification and, thus, it is intended by the  
appended claims to cover all such features and  
10       advantages of the invention which fall within the  
true spirit and scope of the invention. Further,  
since numerous modifications and changes will  
readily occur to those skilled in the art, it is not  
15       desired to limit the invention to the exact  
construction and operation illustrated and  
described, and accordingly all suitable  
modifications and equivalents may be resorted to,  
falling within the scope of the invention.

Reference Number List

	1	Mail server
	2	Mail handler
	3	External memory
5	4	Automatic transfer destination name
	5	System address book
	6	User address book
	7	Mail box
	8-1	Mail client
10	8-2	Mail client
	8-n	Mail client
	20	Head
	22	Receiver
	24	Sender
15	26	Subject
	30	System address book
	32	Destination name
	34	Mail address
	40	User address book
20	42	Destination name
	44	Mail address
	46	Project destination name
	48	Travel destination name
	49	Transfer destination name
25	S11-S17	Process steps



CLAIMS:

1. An automatic transfer unit for handling electronic mail in a computer electronic system, the electronic mail being composed of individual mail messages each having a destination name, including  
5 address books for storing the correspondence between destination names and mail addresses for users of the system, including an automatic transfer destination name and a corresponding mail address, and  
10 a mail handler adapted to process individual items of electronic mail by retrieving the address book of the user corresponding to the destination name of the mail message, and transferring the mail message to the mail address corresponding to the automatic  
15 transfer destination name in that address book.
2. An automatic transfer unit according to claim 1 and further including having an external memory, in which the automatic transfer destination names are stored in the external memory.
- 20 3. An automatic transfer unit according to claim 1 or 2, wherein the automatic transfer destination names are updatable.
4. An automatic transfer unit according to any preceding claim and having a transfer destination name  
25 memory for storing the automatic transfer destination name.
5. An automatic transfer unit according to any preceding claim in which the mail handler searches the address book of the user corresponding to the  
30 destination name of the mail message using the automatic transfer destination name as the keyword to find the corresponding mail address or addresses.
6. An electronic-mail system, comprising:  
a storage unit storing a user's address book  
35 including a keyword designating transfer of the user's electronic-mail to a destination; and

an electronic-mail server coupled to the said storage unit, checking the user's address book for the keyword and transferring the electronic mail to the destination when the user's address book includes the keyword.

5           7.    A method for handling a mail message, including the steps of:  
              receiving the mail message originating from a sender;  
10            converting a destination name of the mail message to a mail address based on a system address book and a plurality of user address books to obtain the mail address of each receiver;  
              reading an automatic transfer destination  
15            name from a transfer destination name memory;  
              searching the user address book of each receiver using the automatic transfer destination name as a keyword; and  
              either storing the message in a mail box of  
20            the receiver or transferring the message to a mail address corresponding to the automatic transfer destination name.

              8.    A process for handling electronic mail, including:  
25            designating a keyword indicating e-mail transfer;  
              scanning a receiver's address book for the keyword;  
              transferring the e-mail to a destination  
30            associated with the keyword when the keyword is in the receiver's address book; and  
              storing the e-mail in the receiver's mail box when the keyword is not in the receiver's address book.



Application No: GB 9620387.2  
Claims searched: 1-8

Examiner: B G Western  
Date of search: 12 November 1996

**Patents Act 1977**  
**Search Report under Section 17**

**Databases searched:**

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK CI (Ed.O): G4A AFGX AUXX ; H4K KF54 KOD4

Int CI (Ed.6): G06F 17/60 ; H04L 12/58

Other: On-line databases: COMPUTER, INSPEC, JAPIO, WPI

**Documents considered to be relevant:**

Category	Identity of document and relevant passage	Relevant to claims
A	EP-0721268-A2 IBM See whole document	-
X	WO-93/07566-A1 MOTOROLA See whole document	1-6,8
A	US-5057935-A WILLIAMS See whole document	-
A	JAPIO Abstract Accession No. 04418147 & JP 06062047A (Fujitsu), 4 March 1994, (see abstract).	-

X Document indicating lack of novelty or inventive step  
Y Document indicating lack of inventive step if combined with one or more other documents of same category.

& Member of the same patent family

A Document indicating technological background and/or state of the art.  
P Document published on or after the declared priority date but before the filing date of this invention.

E Patent document published on or after, but with priority date earlier than, the filing date of this application.